

[Exercises adapted from Larson (2010)]

## 1 Generalization

*Bart chased Lisa* is a sentence (S) with the pattern N V N. So presume we have this rule:  $S \rightarrow N V N$ . Now consider the sentence *Marge thinks Bart chased Lisa*. One way to state the pattern of this sentence is adding a new rule:  $S \rightarrow N V N V N$ . But there is a better way. **What is a better rule? What makes it better?**

## 2 PSRs and Trees IV

Here is a set of phrase structure rules for English.

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$S \rightarrow$	NP V NP
$S \rightarrow$	NP V NP NP
$NP \rightarrow$	Det N
$NP \rightarrow$	NP <i>and</i> NP
$NP \rightarrow$	N

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Det $\rightarrow$	<i>a</i>
N $\rightarrow$	<i>beer</i>
N $\rightarrow$	<i>gift</i>
N $\rightarrow$	<i>Bart</i>
N $\rightarrow$	<i>Marge</i>
N $\rightarrow$	<i>Homer</i>
N $\rightarrow$	<i>Lisa</i>
V $\rightarrow$	<i>bought</i>
V $\rightarrow$	<i>saw</i>
V $\rightarrow$	<i>sent</i>

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- A.** Give the tree that these rules generate for the sentence *Homer bought Marge a gift*.
- B.** Give the tree that these rules generate for the sentence *Homer sent Marge Bart and Lisa*.
- C.** Give three additional English sentences that this grammar generates.
- D.** Give three additional non-English sentences that this grammar (erroneously) generates. To help ensure you're on the right track, let me note/suppose that (even though you can kind of make sense of it by forcing an interpretation where there is a class organized by name) *a Lisa* is not well-formed in English.
- E.** Revise the grammar so that it still produces sentences like those you gave in (C) above, but no longer produces sentences like those you gave in (D).

### 3 Funny

The sentences below are not handled by the grammar above (either the original or with your modifications).

- (1) a. A fancy comedian sent Homer a beer.
- b. A cold comedian saw Lisa.
- c. A funny comedian bought a gift.

**A.** What new rules (including four new lexical items) must be added to the rules in the previous problem in order to produce these sentences?

**B.** Does the grammar predict *Homer sent a funny comedian a cold beer*? Answer that and give a sentence about what is interesting about that fact.

**C.** Draw a tree for *Homer sent a cold funny comedian a fancy beer*.